Amendments to the Claims

This listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims

1-6. (cancelled)

7. (currently amended) A method of testing an optical collimator using a mirror ~~the intensity of light incident on an optical element~~ positioned on an optical axis of light, the method comprising the steps of:

moving either one of the ~~optical element~~ mirror and the optical collimator at a first speed in a first direction intersecting the optical axis;

moving said either one of the mirror and the optical collimator ~~optical element~~ at a second speed different from the first speed in a second direction intersecting the first direction simultaneously with the movement in the first direction; and

measuring the intensity of the light while moving said either one of the ~~optical element~~ mirror and the optical collimator.

8. (cancelled)

9. (currently amended) ~~The light intensity testing method according to claim 7, wherein the optical element includes a first optical element under testing, and~~ A method of testing a first optical collimator using a second optical ~~element~~ collimator for receiving light irradiated from the first optical ~~element~~ collimator and positioned on an optical axis of the first optical collimator, the method comprising steps of:

moving either one of the first and second optical collimators at a first speed in a first direction intersecting the optical axis;

moving said either one of the first and second optical collimators at a second speed different from the first speed in a second direction intersecting the first direction simultaneously with the movement in the first direction; and

measuring the intensity of the light while moving said either one of the first and second optical collimators ~~, wherein either one of the first and second optical elements is moved~~.

10. (currently amended) The light intensity testing method according to claim 7, further comprising the step of storing a position of ~~the optical element~~ said either one of the mirror and the optical collimator at which a measured light intensity reaches a maximum.

11. (currently amended) The testing method according to claim 7, wherein the step of moving ~~the optical element~~ said either one of the mirror and the optical collimator in a first direction includes the step of reciprocally rotating ~~the optical element~~ said either one of the mirror and the optical collimator at the first speed about a first axis orthogonal to the optical axis, and the step of moving ~~the optical element~~ said either one of the mirror and the optical collimator in a second direction includes the step of reciprocally rotating ~~the optical element~~ said either one of the mirror and the optical collimator at the second speed about a second axis orthogonal to the optical axis.

12. (currently amended) The testing method according to claim 7, wherein the step of moving ~~the optical element~~ said either one of the mirror and the optical collimator in a first direction includes the step of reciprocally sliding ~~the optical element~~ said either one of the mirror and the optical collimator at the first speed along a first axis orthogonal to the optical axis, and the step of moving ~~the optical element~~ said either one of the mirror and the optical collimator in a second direction includes the step of reciprocally moving ~~the optical element~~ said either one of the mirror and the optical collimator along a second axis orthogonal to the optical axis at the second speed higher than the first speed.

13. (currently amended) A method of aligning a ~~work~~ collimation lens and an optical fiber of an optical collimator positioned on an optical axis of light, comprising the steps of:

moving an optical element positioned to substantially oppose the ~~work~~ optical collimator at a first speed in a first direction intersecting the optical axis;

moving the optical element at a second speed different from the first speed in a second direction intersecting the optical axis and the first direction, simultaneously with the movement in the first direction;

measuring the intensity of [[the]] light that passes through the optical collimator while moving the optical element; and

aligning the ~~work~~ optical collimator based on the result of measurement.

14. (previously amended) The method according to claim 13, further comprising the step of storing a position of the optical element and the measured light intensity.

15. (currently amended) The method according to claim 14, wherein the step of aligning includes the step of fixing the optical element at a position at which the measure light intensity reaches a maximum, and moving the ~~work~~ optical collimator along the optical axis.

16. (currently amended) The method according to claim 13, wherein the ~~work~~ optical collimator has a tube~~, a collimation lens~~ and a capillary disposed in the tube~~, and an~~ for receiving the optical fiber ~~disposed in the capillary~~, and the step of aligning includes the step of moving the optical fiber along the optical axis.

17. (currently amended) A method of aligning a ~~work~~ collimation lens and an optical fiber of an optical collimator positioned to substantially oppose an optical element disposed on an optical axis of light, the method comprising the steps of:

moving the ~~work~~ optical collimator at a first speed in a first direction intersecting the optical axis;

moving the ~~work~~ optical collimator at a second speed different from the first speed in a second direction intersecting the optical axis and the first direction, simultaneously with the movement in the first direction;

measuring the intensity of the light that passes through the optical collimator while moving the ~~work~~ optical collimator; and

aligning the ~~work~~ optical collimator based on the result of measurement.

18. (currently amended) The method according to claim 17, further comprising the step of storing a position of the ~~work~~ optical collimator and the measured light intensity.

19. (currently amended) The method according to claim 18, wherein the step of aligning includes the step of holding the ~~work~~ optical collimator at a position at which a measured light intensity reaches a maximum, and moving the ~~work~~ optical collimator along the optical axis.

20. (currently amended) The method according to claim 17, wherein the ~~work~~ optical collimator has a tube~~, a collimation lens~~ and a capillary disposed in the tube~~, and an~~ for receiving the optical fiber ~~disposed in the capillary~~, and the step of aligning includes the step of moving the optical fiber along the optical axis.

21. (cancelled)

22. (currently amended) A tester for testing ~~a work~~ an optical collimator comprising:

an optical element positioned on an optical axis of light;

a scanning mechanism for movably holding the optical element in a first direction intersecting the optical axis and for movably holding the optical element in a second direction intersecting the optical axis and the first direction, simultaneously with a movement in the first direction;

an optical sensor for measuring the intensity of light passing through the ~~work~~ optical collimator; and

a controller for testing the work based on the measured intensity of light, the controller controlling the scanning mechanism to move the optical element at a first speed in the first direction and move the optical element at a second speed different from the first speed in the second direction.

23. (currently amended) A tester for testing ~~a work~~ an optical collimator comprising:

an optical element positioned on an optical axis of light;

a ~~work~~ holder for holding the ~~work~~ optical collimator to oppose the optical element;

a scanning mechanism for movably holding at least one of the optical element and the ~~work~~ optical collimator in a first direction intersecting the optical axis and for movably holding at least one of the optical element and the ~~work~~ optical collimator in a second direction intersecting the optical axis and the first direction, simultaneously with a movement in the first direction;

an optical sensor for measuring the intensity of light passing through the ~~work~~ optical collimator; and

a controller for testing the work based on the measured intensity of light, the controller controlling the scanning mechanism to move at least one of the optical element and the ~~work~~ optical collimator at a first speed in the first direction and move at least one of the optical element and the ~~work~~ optical collimator at a second speed different from the first speed in the second direction.

24. (currently amended) The tester according to claim 23, wherein the controller includes a storage device for storing a position of the ~~work~~ optical collimator or the optical element, and a measured light intensity.

25. (currently amended) The tester according to claim 23, wherein the ~~work~~ optical collimator is fixed, and the optical element is moved by the scanning mechanism.

26. (original) The tester according to claim 23, wherein the optical element is a mirror, and the sensor measures the intensity of reflected light from the mirror.

27. (original) The tester according to claim 23, wherein the optical element is a lens, and the sensor measures the intensity of light which transmits the lens.

28. (currently amended) An apparatus for aligning ~~a work~~ an optical collimator having a tube, a collimation lens, a capillary disposed within the tube, and an optical fiber disposed within the capillary, the apparatus comprising:

an optical element positioned on an optical axis of light;

a ~~work~~ holder for holding the ~~work~~ optical collimator to oppose the optical element;

a scanning mechanism for movably holding at least one of the optical element and the ~~work~~ optical collimator in a first direction intersecting the optical axis and for movably holding at least one of the optical element and the ~~work~~ optical collimator in a second direction intersecting the optical axis and the first direction, simultaneously with a movement in the first direction;

an optical sensor for measuring the intensity of light passing through the ~~work~~ optical collimator; and

a controller for controlling the scanning mechanism, the controller controlling the scanning mechanism to move at least one of the optical element and the ~~work~~ optical collimator at a first speed in the first direction and move the optical element at a second speed different from the first speed in the second direction; and

an adjuster for movably holding the optical fiber along the optical axis, the adjuster changing the distance between the collimation lens and the optical fiber.

29. (cancelled)

30. (currently amended) The apparatus according to claim [[29]] 28, wherein the controller includes a storage device for storing a moving distance of the optical fiber along the optical axis.

31. (original) A method of aligning a work having an optical fiber and a collimation lens, the method comprising the steps of:

rotating a mirror disposed on an optical axis of the work to irradiate the work with reflected light about a first axis and a second axis orthogonal to the optical axis over a relatively wide range;

capturing reflected light passing through the work while rotating the mirror;

measuring the intensity of the reflected light while rotating the mirror in a relatively narrow scanning range near a position of the mirror at which the reflected light is captured, the mirror being rotated about the first axis at a first speed and being rotated about the second axis at a second speed higher than the first speed;

storing a maximum value of the measured light intensity and the position of the mirror;

moving the optical fiber along the optical axis by a predetermined distance;

measuring the intensity of the reflected light while rotating the mirror in a relatively narrow scanning range near the stored position of the mirror, the steps of rotating, storing and moving being repeated until the maximum value of the measured light intensity becomes smaller than the stored maximum value of the light intensity;

returning the position of the optical fiber by the predetermined distance when the maximum value of the measured light intensity is smaller than the stored maximum value of the light intensity; and

fixing the optical fiber at the returned position.

32. (original) The method according to claim 31, wherein the first speed is in a range of 0.1 to 10 Hz, and the second speed is in a range of 100 Hz to 1 kHz.

33. (original) The method according to claim 31, further comprising the step of sliding the mirror along the first axis and the second axis after rotating the mirror in the relatively narrow scanning range.

34. (new) The method according to claim 7, wherein either one of the mirror and the optical collimator is reciprocally moved within a predetermined scanning distance in the first direction and the second direction, and wherein the second speed is in a range of 100 Hz to 1 kHz, and the first speed is in the range of 0.1 to 10 Hz.

35. (new) The method according to claim 9, further comprising a step of storing a position of said either one of the first and second optical collimators at which a measured light intensity reaches a maximum.

36. (new) The method according to claim 9, wherein the step of moving said either one of the first and second optical collimators in a first direction includes a step of reciprocally rotating said either one of the first and second optical collimators at the first speed about a first axis orthogonal to the optical axis, and the step of moving said either one of the first and second optical collimators in a second direction includes a step of reciprocally rotating said either one of the first and second optical collimators at the second speed about a second axis orthogonal to the optical axis.

37. (new) The method according to claim 9, wherein the step of moving said either one of the first and second optical collimators in a first direction includes a step of reciprocally sliding said either one of the first and second optical collimators at the first speed along a first axis orthogonal to the optical axis, and the step of moving said either one of the first and second optical collimators in a second direction includes a step of reciprocally moving said either one of the first and second optical collimators along a second axis orthogonal to the optical axis at the second speed higher than the first speed.

38. (new) The method according to claim 9, wherein said either one of the first optical collimator and the second optical collimator is reciprocally moved within a predetermined scanning range in the first direction and the second direction, and wherein the second speed is in a range of 100 Hz to 1 kHz, and the first speed is in a range of 0.1 to 10 Hz.

39. (new) A method of testing an optical collimator using a mirror, the method comprising the steps of:

arranging the optical collimator and the mirror on an optical axis of light such that the mirror reflects light emitted by the optical collimator and the optical collimator receives the reflected light;

moving at least one of the mirror and the optical collimator at a first speed in a first direction intersecting the optical axis;

moving said at least one of the mirror and the optical collimator at a second speed different from the first speed in a second direction intersecting the first direction simultaneously with the movement in the first direction; and

measuring an intensity of the reflected light while moving said at least one of the mirror and the optical collimator.

40. (new) A method of testing a first optical collimator using a second optical collimator, the method comprising steps of:

arranging the first and second optical collimators on an optical axis of light such that the second collimator receives light emitted from the first optical collimator;

moving at least one of the first and second optical collimators at a first speed in a first direction intersecting the optical axis;

moving said at least one of the first and second optical collimators at a second speed different from the first speed in a second direction intersecting the first direction simultaneously with the movement in the first direction; and

measuring an intensity of the light received by the second optical collimator while moving said at least one of the first and second optical collimators.